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S/081/61/000/012/011/028  
B11Q/B216

188300

AUTHORS: Negreyev, V. F., Kasumzade, N. G., Mamedov, I. A., Kuliyeu, R.  
Sh., Antonova, K. I.

TITLE: Corrosion of special steels in naphthenic acids

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 12, 1961, 324, abstract  
12W180 (12I180)("Azerb. neft. kh-vo", 1960, No 11, 43 - 45

TEXT: A study of the corrosion rates of 15 different brands of stainless steels in naphthenic acids at 200 - 275°C showed that Cr steels have a high corrosion rate, Cr-Ni steels a low corrosion rate attaining high values at 275°C, and that Cr-Ni-Si steel (Si: 3-6 %) has an exceptionally high stability. This is explained by the properties of the protective films formed in presence of Si. [Abstracter's note: Complete translation.] X

Card 1/1

NASIROV, Z.I. ; KASUMZADE, N.G., red.; AKHMEDOV, S., tekhn. red.

[Highly efficient technological processes in foundry practice]  
Vysokoproizvoditel'nye tekhnologicheskie protsessy v chuguno-  
liteinom proizvodstve. Baku, Azerneshr, 1962. 197 p.

(MIRA 15:6)

(Founding)

KASUMZADE, N.G.; TPR-SAAKOV, B.U.; MAMEDOV, N.A.; ARAKELOV, A.S.;  
SPEKTOR, Sh.Sh.; NEGREYEV, V.F., red.; ZEYNALOVA, T.Z.,  
red. izd-va; AKHMEDOV, S., tekhn. red.

[Protection of apparatus and equipment of petroleum re-  
fineries from corrosion] Zashchita apparatury i oborudovaniia  
neftepererabatyvalushchikh zavodov ot korrozii. [By] N.G.  
Kasumzade i dr. Baku, Azerneshr. 1962. 282 p. (MIRA15:9)  
(Petroleum refineries--Equipment and supplies)  
(Corrosion and anticorrosives)

KASUM-ZADE, N.G., kand. tekhn.nauk; MAMEDOV, I.A., red.; SHTEYNGEL',  
A.S., red. izd-va; AKHMEDOV, S., tekhn. red.

[Corrosion-resistant steels for the petrochemical industry]  
Korroziionnostoikie stali dlia promyshlennosti neftekhimiche-  
skogo sinteza. Baku, Azerbaidzhanskoe gos.izd-vo, 1962. 207 p.  
(MIRA 16:3)

(Steel, Stainless) (Petroleum chemicals)

KASUMZADE, N.G., prof.; MUSTAFAYEV, A.D., red.

[Liquid metal drop forging of parts] Shtampovka detalei iz  
zhidkogo metalla. Baku, Azerneshr, 1964. 82 p.  
(MIRA 17:5)

4134 KASUM-ZADE, Z. N.

Kliniko-eksperimental'noe izucheniye transplantata pri kozhno-podkozhnoy.  
plastike. Baku, 1954. 16 s. 20 sm. (Azergaydzh. gos. med. in-t).  
100 ekz. Bespl. - (54-56602)

KASUM-ZADE, Z. N.

"The Clinical and Experimental Study of Transplantation During Cutaneous and Subcutaneous Plastic Surgery." Cand Med Sci, Azerbaydzhan State Medical Inst, Baku, 1954. (KL, No 3, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)  
SO: Sum. No. 556, 24 Jun 55

ALIYEV, G.K.; GADZHIYEV, A.A.; LOGINOV, A.A.; ATLAS, V.V.; KAZIMOVA, M.N.;  
KASUMZADE, Z.N.

Effect of potentiated local anesthesia, using ganglion-blocking  
drugs and intramuscular hexenal injections, and the total protein  
content and the ratios of protein fractions in blood serum in certain  
surgical interventions. Azerb. med. zhur. no.7:9-16 J1 '61.  
(MIRA 15:1)

1. Iz khirurgicheskoy kafedry (zav. -- zasluzhennyy deyatel' nauki  
prof. G.K.Aliyev) Azerbaydzhanskogo instituta usovershenstvovaniya  
vrachey (direktor -- prof. A.M.Aliyev).  
(AUTONOMOUS DRUGS) (HEXOBARBITAL)  
(BLOOD PROTEINS)



BALABANOV, V.A.; KASUROV, L.B.

Asteroid growth and other morphological changes of Trichophyton mentagrophytes under the action of carbon dioxide. Dermatoveny Sofia 1 no.3:5-8 '62.

1. Iz Katedrata po kozhni bolesti pri VMI, Sofia (rukov. na katedr. prof. d-r L. Popov) i Nauchno-izsledovatel'skii i-t po epidemiologii i mikrobiologii, Sofia (direktor d-r VI. Kolaidziev).

KASVERYUK, N. A.

"Results of Effectiveness of Egg Yolk Tularemia Vaccine," from the  
monograph Effect of Vaccination Against Tularemia, 1953. p. 80

Translation D 568409

KASVIMOV, M.

Machinery against people; some social results of automation under  
capitalism. Okhr.truda i sots.strakh. no.7:88-92 J1 '59.  
(MIRA 12:11)

(Capitalism) (Automation)

KASVINOV, M.

Industrial accidents and occupational disease in the capitalist world. Okhr.truda i sots.strakh. 5 no.1:43-45 Ja '62.

(MIRA 15:2)

(Industrial hygiene)

KASVINOV, M.

Wasters of human lives. Okhr. truda i sots. strakh. 5 no.5:45-47  
My '62. (MIRA 15:5)  
(INDUSTRIAL HYGIENE) (INSURANCE, SOCIAL)

KAS'YAKOV, N.

Ways to reduce milk costs on state farms. Vop. ekon. no. 2:141-145  
F '58. (MIRA 11:3)

(Vladimir Province--Dairying)

KAS'YAKOV, V.M.

Change in man's motor function as a result of a disturbed balance between the cortical processes of stimulation and inhibition. V.M. Kas'iyakov, A.L. Fruktev. Teor.i prak. fizkul. 16 no.3:184-191 Nr '53.

KAS'YAN, A., inzh.

Using cement sand mixes in lining silo trenches. Sil'.bud.  
7 no.6:15 Je '57. (MIRA 13:3)  
(Silos) (Building blocks)



KAS'YAN, A.A., Cand Tech Sci -- (diss, "Study of  
the physico-mechanical properties of sand cement  
materials." Kiev, 1958, 22 pp (Min of Higher Edu-  
cation UkSSR. Kiev Engineering Construction Inst)  
150 copies (KL, 50-58, 124)

- 67 -

SLOBODYANIK, I.Ya., kand. tekhn. nauk; KAS'YAN, A.A., inzh.

Possibilities for economizing cement in producing sand-cement  
roofing tiles. Stroi. mat. 5 no.6:37 Je '59. (MIRA 12:8)  
(Cement) (Tiles, Roofing)

KAS'YAN, A. G.; MALINICHEV, D. I.

**Electric Lines**

Presses for mounting, connecting, and tightening terminals on electric transmission lines, and connecting bushings on 110 KV cables, *Ilab, energ*, 2, no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952, Uncl.

8(6)

SOV/91-59-7-10/21

AUTHOR:

Kas'yan, A.G. Technician

TITLE:

The Experience in the Operation of Small-Size Presses  
MGP-3 and MGP-12

PERIODICAL:

Energetik, 1959, Nr 7, pp 16-18

(USSR)

ABSTRACT:

The small-size hydraulic presses MGP-3 and MGP-12 are not used at some power distribution system because of minor design defects and lacking knowledge of the adjustment of the valve mechanism. The experience in operating these presses by the Mosenergo power distribution system resulted in uncovering and eliminating some minor design defects. The author cites the deficiencies which were observed when operating 100 presses of type MGP-3. Failures of the valve mechanism are caused by minute mechanical particles and the author suggests using a brass screen as a filter. In his conclusions the author emphasizes that the experience during many years proved the reliable operations of presses MGP-3 and MGP-12, provided proper adjustments are made. The author further gives

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The Experience in the Operation of Small-Size Presses MGP-3 and  
MGP-12

recommendations for using these presses for connecting  
wires of overground power transmission lines. There  
are 4 diagrams.

Card 2/2

KAS'YAN, A.G., tekhnik

Device for exchange of bracket insulators on RLN-110 and RLN-220  
disconnectors. Energetik 8 no.1:26-28 Ja '60.

(MIRA 13:5)

(Electric insulators and insulation)

USSR / Pharmacology and Toxicology--Medicinal Plants V-5

Abs Jour: Ref Zhur-Biol, No 23, 1958, 107353

Author : ~~Kasiyan, A. I.~~

Inst : Not given

Title : On the Chemical and Pharmacological Characteristics  
of Certain Representatives of Crataegus

Orig Pub: V sb.: Nekotoryye voprosy farmatsii. Kiyev,  
Gosmedizdat USSR, 1956, 339-343

Abstract: Investigation of three kinds of Crataegus--Dzhun-  
garian, bent-stem, and oxycantha--showed that the  
highest amount of glycosides acting upon the heart  
is contained in the leaves of the Dzhungarian Cra-  
taegus (DC). In experiments on an isolated thick-  
ened heart for the determination of the biological

Card 1/2

25

KAS'YAN, A.I.

Some data on the therapeutic effect of mycetin D-17. Farmatsev. zhur.  
1. no.6:42-44 '64. (MIRA 18:4)

1. Kafedra mikrobiologii Dnepropetrovskogo meditsinskogo instituta  
(zaveduyushchiy kafedroy - prof. Yu.I.Domikhovskiy [Demikhovs'kiy,  
I.I.]).



KAS'YAN, G.G., aspirant; CHEPUROV, K.P., prof.

Methods for obtaining pasteurellosis vaccines. Veterinariia 41  
no.1:25-26 Ja '65. (MIRA 18:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut zemledeliya.

YUGANOV, Ye.M.; KAS'YAN, I.I.; YAZDOVSKIY, V.I.

Muscle tone during weightlessness. Izv. AN SSSR. Ser. biol.  
no. 4:601-606 J1-Ag '60. (MIRA 13:8)

1. Akademiya meditsinskikh nauk SSSR.  
(WEIGHTLESSNESS) (MUSCLE)

ACC NR: AT6036561

SOURCE CODE: UR/0000/66/000/000/0169/0170

AUTHOR: Zharov, S. G.; Kuzminov, A. P.; Kas'yan, I. I.; Maksimov, D. G.;  
Onishchenko, V. F.; Popov, V. A.

ORG: none

TITLE: The problem of investigating pilot work capacity during long sojourns in  
spaceship mockups [Paper presented at the Conference on Problems of Space Medicine  
held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy  
kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii,  
Moscow, 1966, 169-170

TOPIC TAGS: isolation test, human physiology, hypodynamia, respiratory system,  
space physiology

ABSTRACT: On prolonged spaceflights, cosmonaut work activity will take place  
during the exposure of the organism to a whole group of unusual factors  
(weightlessness, prolonged isolation, hypodynamia, altered gas medium,  
and so forth). Study of the effect on man of these factors is of great  
practical importance.

The purpose of the present investigation is to study the condition and  
work capacity of man during a prolonged sojourn in a spaceship mockup.

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ACC NR: AT6036561

was more pronounced. Thus, on the first, fifth, seventh, and eleventh days, a one and one-half to two-fold decrease in the accuracy of ship attitude control from angular coordinates was recorded. The time required for information transmission increased toward the end of the experiment by an average of 10%. In the correction tests, the information capacity of the visual analyzer dropped from 1.7 to 1.3—1.5 bits/sec. The red and blue light contrast sensitivity of the eyes decreased 35% and 40%, respectively, from L. N. Meyer's data.

Numerous changes in physiological indices were also noted toward the end of the experiment. Thus, for example, the EEG's showed a stagnant exaltation of alpha rhythms. Tests with sudden random signals requiring a response reaction from the subject showed a decrease in electromyogram amplitude from 300—200 $\mu$ v and a galvanic skin response amplitude decrease from 650—480 $\mu$ v.

The observed functional shifts in the state of the subject during a 12-day stay in a spaceship mockup indicate that further study of pilot work capacity under analogous conditions is necessary, as is an effort to find optimal work-rest schedules for cosmonauts on prolonged spaceflights. [W.A. No. 22; ATD Report '66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

YAZDOVSKIY, V.I.; YUGANOV, Ye.M.; KAS'YAN, I.I.

Posture reflex in intact animals during weightlessness. Izv. AN  
SSSR. Ser. biol. no.5:762-767 S-0 '60. (MIRA 13:9)

1. Institute of Normal and Pathological Physiology, Academy of  
Medical Sciences of the U.S.S.R., Moscow.  
(WEIGHTLESSNESS)

YUGANOV, Ye.M.; KAS'YAN, I.I.; GUROVSKIY, N.N.; KONOVALOV, A.I.;  
YAKUBOV, B.A.; YAZDOVSKIY, V.I.

Sensory reactions and voluntary movements in man under conditions  
of weightlessness. Izv. AN SSSR. Ser.biol. no.6:897-904 N-D '61.  
(MIRA 14:11)

1. Institute of Normal and Pathological Physiology, Academy of  
Medical Sciences of the U.S.S.R., Moscow.  
(WEIGHTLESSNESS)

L 23251-66 FSS-2/EWT(1)/EEC(k)-2/EWA(d) SCTP IT/ED/GW  
ACC NR: AP6011411 SOURCE CODE: UR/0216/56/000/002/0212/0220  
AUTHOR: Balakhovskiy, I. S.; Vasil'yev, P. V.; Kas'yan, I. I.;  
Popov, I. G.  
ORG: none  
TITLE: Results of a physiological and biochemical examination of the  
Voskhod-1 crew  
SOURCE: <sup>Y8</sup>AN SSSR. Izvestiya. Seriya biologicheskaya, no. 2, 1966,  
212-220  
TOPIC TAGS: manned spaceflight, human physiology / Voskhod-1  
ABSTRACT: Some detailed physiological and biochemical results (in-  
cluding some redundant data) of the Voskhod-1 flight are given in the  
following figures:  
Card 1/7 UDC: 612.17

L 23281-66

ACC NR: AP6011411

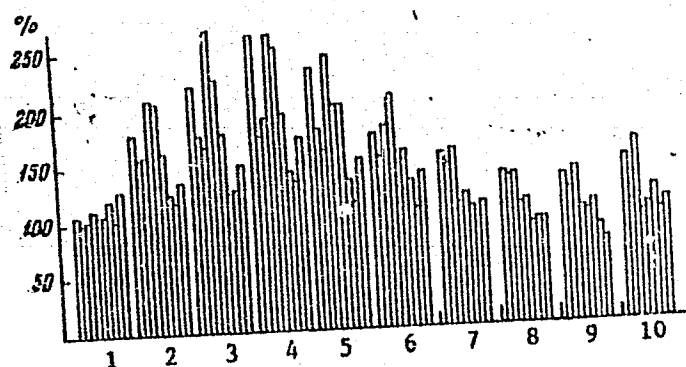


Fig. 1. Comparative data on pulse variations for all cosmonauts (% above normal) at various flight stages. The sequence of bars in each frame corresponds to: Gagarin, Titov, Nikolayev, Popovich, Bykovskiy, Tereshkova, Komarov, Feoktistov, Yegorov.

1 - 4 hr before launch; 2 - 5 min before launch; 3 - 1 min before launch; 4 - 1 min after launch; 5 - greatest G force; 6 - 1st orbit; 7 - 2nd orbit; 8 - 4th orbit; 9 - 6th orbit; 10 - last orbit.

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ACC NR: AP6011411

Table 1. Changes in some EKG indexes during the Voskhod-1 flight; PQ, QRS, Q-T, R-R intervals in sec; spike amplitudes of P, R, T in relative units; systolic index (SI) in %; all mean data

Cosmonauts	Indexes	Pre-launch	Orbits			
		5 min.	2	7	13	16
V. M. Komarov	P	0.88	3.2	2.9	0.6	0.78
	R	15.4	40.3	30.5	10.0	10.1
	T	2.7	14.2	14.5	3.6	2.6
	PQ	0.10	0.11	0.11	0.10	0.10
	QRS	0.06	0.07	0.07	0.07	0.08
	Q-T	0.34	0.37	0.38	0.38	0.34
	R-R	0.61	0.78	0.78	0.89	0.75
	SI	55.7	48.7	50.7	45.0	45.3
K. P. Feoktistov	P	0.81	—	2.4	0.60	0.64
	R	16.4	—	38.7	8.9	9.1
	T	3.4	—	13.2	3.2	2.8
	PQ	0.14	—	0.14	0.11	0.12
	QRS	0.05	—	0.06	0.06	0.08
	Q-T	0.36	—	0.42	0.38	0.36
	R-R	0.69	—	0.96	0.87	0.78
	SI	52.0	—	43.3	44.2	46.8
B. B. Yegorov	P	0.37	2.4	1.6	0.44	0.51
	R	10.9	32.0	39.2	8.9	8.1
	T	1.1	5.7	10.8	2.4	1.8
	PQ	0.12	0.12	0.16	0.10	0.10
	QRS	0.06	0.06	0.07	0.07	0.07
	Q-T	0.34	0.37	0.39	0.40	0.37
	R-R	0.59	0.73	0.98	1.03	0.90
	SI	59.8	50.7	40.1	39.2	41.0

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ACC NR: AP6011411

Table 2. Water balance during the flight

1 - Loss of water with urine; 2 - cosmonauts; 3 - linen chloride content, mg; 4 - urine excretion, liters; 5 - water lost via imperceptible perspiration during the flight, liters; 6 - total, calculated water loss through the skin during the flight, liters; 7 - water ingested, including water in food, during the flight, liters; 8 - actual weight lost from 8:20, 12/10 to 18:10, 13/10, 1964, kg; 9 - V. M. Komarov, K. P. Feoktistov, B. B. Yegorov in that order.

2	1		5	6	7	8
	3	4				
9	532	3,4	1,0	4,4	1,6	1,0
	324	2,1	1,0	3,1	1,5	2,0
	460	3,2	1,0	4,2	1,6	3,0

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L 23281-66

ACC NR: AP6011411

Table 3. Biochemical and morphological content of the blood during the flight compared with training data

Indexes	Complex Background training examination				Land	Flight		After flight		
	Be-fore	Aft-er	43 days	12 days		start	end	Time	1 day	15 days
V. M. Komarov										
Sugar, mg%	92	115	—	105	101	—	—	160	115	107
Urea, mg%	34	38	38	22	32	—	—	41	39	28
Chlorine, mg%	225	250	280	225	175	—	—	225	210	135
Leukocytes, 1000/mm <sup>3</sup>	5,4	6,8	5,1	4,5	4,9	—	—	7,0	5,9	—
Formula:	5,5	3	3	6	5	—	—	6	6	—
Rods	63	60,5	55,5	64	40	—	—	64	51	—
Segments	1	3,5	2	5	3	—	—	1	2	—
Eosinophiles	26	25,5	33,5	17	47	—	—	25	35	—
Lymphocytes	4,5	7,5	6	8	5	—	—	4	6	—
Monocytes										

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K. P. Feoktistov

Sugar, mg%	82	115	133	75	100	—	85	105	70	83
Urea, mg%	21	25	35	25	31	—	47	40	—	36
Chlorine, mg%	237	250	250	225	225	—	200	225	255	230
Leukocytes, 1000/mm <sup>3</sup>	5,2	6,1	5,1	5,4	4,2	5,1	5,4	6,0	4,8	—
Formula:										
Rods	2	4,5	2,5	1	1	1,5	4,0	1,5	2	—
Segments	57	60	61,5	64	60	67,5	48	60	60	—
Eosinophiles	2	1,5	1,0	1	2	2	2	0,5	3,5	—
Lymphocytes	32	30	27	30	28	24,5	36	29,5	28,5	—
Monocytes	7	4	8	4	9	4,5	10	8,5	6	—

B. B. Yegorov

Sugar, mg%	50	50	110	115	115	75	112	55	65	50
Urea, mg%	20	19	33	23	—	51	41	40	41	38
Chlorine, mg%	240	280	220	260	220	210	180	220	240	200
Leukocytes, 1000/mm <sup>3</sup>	7,5	11,5	6,5	8,0	8,1	—	18,1	12,9	8,2	—
Formula:										
Rods	2	3	2,5	1	3	—	0,5	1,5	2,5	—
Segments	53	50,5	51	55	43	—	35,5	62,5	51,5	—
Eosinophiles	1	3	2,5	1	4	—	2,5	1	2,5	—
Lymphocytes	37	37	30	36	43	—	56	30,5	38	—
Monocytes	7	6,5	8	7	7	—	5,5	4,5	5,5	—

It was noted that the cosmonauts did not tolerate re-entry as well as they did centrifugation during training. This was attributed to the day-long exposure to weightlessness. None of the observed deviations

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ACC NR: AP6011411

from normal was pathological and rapid recovery took place. Attention is brought to the individual somatic and autonomic peculiarities of the cosmonauts and their level of training. Orig. art. has: 4 tables and 2 figs. [CD]

SUB CODE: 22, 06/ SUBM DATE: 10Sep65/ ORIG REF: 010/ JTH REF: 004  
ATD PRESS: 4231

Card 7/7 ULR

VOLYNKIN, Yu.M.; YAZDOVSKIY, V.I.; GENIN, A.M.; VASIL'YEV, P.V.;  
 GYURDZHIAN, A.A.; GUROVSKIY, N.N.; GORBOV, F.D.; SERYAPIN,  
 A.D.; BELAY, V.Ye.; BAYEVSKIY, R.M.; ALTUKHOV, G.V.;  
 KOPANEV, V.I.; KAS'YAN, I.I.; YEGOROV, A.D.; SIL'VESTROV,  
 M.M.; SIMPURA, S.F.; TEREENT'YEV, V.G.; KRYLOV, Yu.V.; FOMIN,  
 A.G.; USHAKOV, A.S.; DEGTYAREV, V.A.; VOLOVICH, V.G.;  
 STEPANTSOV, V.I.; KYASHNIKOV, V.I.; YAZDOVSKIY, V.I.; KASHIN,  
 P.S., tekhn. red.

[First space flights of man; the scientific results of the  
 medicobiological research conducted during the orbital  
 flights of the spaceships "Vostok" and "Vostok-2"] Pervye  
 kosmicheskie polety cheloveka; nauchny rezul'taty mediko-  
 biologicheskikh issledovaniy, provedennykh vo vremya orbi-  
 tal'nykh poletov korablei-sputnikov "Vostok" i "Vostok-2."  
 Moskva, Izd-vo Akad. nauk SSSR, 1962. 202 p. (MIRA 15:11)  
 (SPACE MEDICINE) (SPACE FLIGHT TRAINING)

27.2200

39282

S/216/62/000/001/002/002

1015/1215

AUTHOR: Yuganov, Ye. M., Kas'yan, I. I. and Yazdovskiy, V. I.

TITLE: The tolerance of animals to shock overloads acting in the direction close to the long axis of the body

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 1, 1962, 90-95

TEXT: Freely fastened animals (dogs) were catapaulted with an overload of 20-23 units, in supine, sitting, and standing positions, for 0.1-0.5 seconds. The animals were subjected to a negative overload (direction pelvis-head) in the final stage of the experiment. The soft tissues of the animals, as well as the supporting apparatus, were not affected by the experimental conditions. The catapaulting brought about transient functional changes in the cardio-vascular and respiratory systems, which returned to normal within 4-5 minutes. The results obtained were useful during the planning and performing of the space flight in the second, fourth and fifth space ships — sputniks. There are 4 figures and 2 tables.

ASSOCIATION: Institut normal'noy i patologicheskoy fiziologii Akademii meditsinskikh nauk SSSR (Institute of Normal and Pathological Physiology, Academy of Medical Sciences, USSR) Moscow

SUBMITTED: June 22, 1961

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X

S/865/62/001/000/005/033

E028/E185

AUTHORS: Kas'yan, I.I., Yuganov, Ye.M., and L'vova, T.S.

TITLE: Changes in certain morphological and biochemical indices of the peripheral blood of animals after rocket flights

SOURCE: Problemy kosmicheskoy biologii. v.1. Ed. by N.M. Sisakyan. Moscow, Izd-vo AN SSSR, 1962. 161-165

TEXT: Determinations of blood count and blood biochemistry were carried out on 12 dogs which had undergone 2 to 5 space flights. Blood samples were taken on the eve of flight, 1.5 to 2.5 hours after landing, and also at later stages; 42 investigations were carried out in all. After the flight an increase in white cell count by 1800 - 11050 cells per mm<sup>3</sup> was noted, due mainly to an increase in neutrophils with a shift to the left of up to 30% of unsegmented forms. These changes were ascribed to a redistribution of cells from depot organs under the influence of mechanical forces, although a stress reaction may also have been concerned. No changes were noted in the red cell count, but after space flight there was a reduction in clotting time, with

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Changes in certain morphological...

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an increase in calcium and prothrombia and a slight rise in the  
platelet count.  
There are 3 tables.

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S/865/62/002/000/020/042  
D405/0301

AUTHORS: Yuganov, Ye.M., Kas'yan, I.I., Cherepakhin, M.A.  
and Gorshkov, A.I.

TITLE: On some responses of human subjects to sub-gravity  
conditions

SOURCE: Problemy kosmicheskoy biologii, v. 2. Ed. by N. Sisa-  
kyan and V. Yazdovskiy. Moscow, Izd-vo AN SSSR, 1962,  
206-214

TEXT: This article was presented at the 10th European Con-  
gress on Aviation and Space Medicine, Paris, 26-30 September, 1961.  
The authors investigated the nature of sensory response and the de-  
gree of change of some motion indicators of human subjects under  
sub-gravity conditions. The experiments were conducted during para-  
bolic flights with weightlessness periods of up to 30 sec. The ana-  
lysis of the experimental material showed that all the subjects  
can be divided, from the point of view of their sensory response,  
into 3 groups: a) those subjects whose general state did not change.  
Card 1/3

On some responses ...

S/865/62/002/000/020/042  
D405/D301

iorate or who even experienced a feeling of relief or comfort;  
b) those who were disoriented and could no longer properly respond  
to environment: however, after 12-15 trials of weightlessness they  
became fully adapted to it; c) those who temporarily lost their  
weight capacity: in these cases 20-30 periods of weightlessness  
were necessary for their adaptation. It is noted that the results of  
the experiments are applicable to short periods of weightlessness.  
In the experiments, the muscular force of the hand was measured and  
the possibility of making and sustaining a prolonged effort was  
analyzed. In 266 measurements on 20 subjects it was found that the  
muscular force of the hand decreased (in 82% of the cases) from  
45-65 kg to 4-22 kg. A special dynamograph with visual control was  
used in the experiments. It was found that in the first seconds of  
weightlessness the muscular force underwent fluctuations ranging  
from 0 to 400 gm. It can be assumed that in operating the control  
levers, designed for a force of up to 400 gm, the accuracy of the  
muscular effort during the transient periods can vary considerably;  
this can prove a major factor in equipment control on board space  
ships. Conclusions: From the point of view of sensory response,

Card 2/3

In some responses ...

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D405/D301

all human subjects can be divided into 3 groups. At the initial stage of weightlessness, various changes in motor-force indicators are observed. Weightlessness is accompanied by regular changes in the bioelectric activity of the neck muscles that manifests itself by a marked drop in biopotential amplitude (from 40 to 25 microvolt). Parabolic flights on aircraft can be used not only for weightlessness experiments, but also for space flight crew selection and training. The majority of selected subjects do not experience sensory ill-effects under weightlessness conditions. There are 4 figures.

Card 5/3

KAS'YAN, I. I.

27 2500

39457

S/216/62/000/003/002/002

1021/1221

~~KATSI~~  
AUTHOR: Yuganov, Ye. M., Isakov, P. C., Kაციან, I. I., Afanasiev, D. V. and Pavlov, G. I.

TITLE: Motor activity of intact animals under conditions of artificial gravity

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya Biologicheskaya, no. 3, 1962, 455-460

TEXT: The minimal effective value of artificial gravity necessary to maintain the body posture and coordination of movements of mice and rats under conditions of weightlessness as in the parabolic flight of an aeroplane was determined. Artificial gravity was created in a small size centrifuge which produced radial accelerations varying from 0.05 to 1.0 g. Accelerations of 0.28 to 0.3 g were sufficient for prophylaxis of the unfavourable effect of weightlessness upon the motor reactions of the animals. There are 2 figures and 1 table. English-language references are: Beckh H. J. 1959. Flight experiments about human reactions to accelerations which are followed or preceded by weightlessness. Aerospace medicine, 30, 6, 391-409; Graveline D. E. Balke B., McKensie R., Hartmann B. 1961. Psychobiologic effects of water immersion induced hypodynamics. Aerospace medicine, 32, 5.

ASSOCIATION: Institut normalnoi i putologicheskoi fiziologii AMN SSSR (Institute of Normal and Pathological Physiology, AMS USSR) Moscow

SUBMITTED: February 6, 1962

Card 1/1

43805

S/216/62/000/006/001/002  
A004/A127

27.6200

AUTHOR: Kas'yan, I.I.

TITLE: Some physiological responses of man under the conditions of alternating effect of overloads and short-term weightlessness

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 6, 1962, 896 - 907

TEXT: Investigations were carried out to study the behavior of 55 test persons in a number of flights on special aircraft, where short-term weightlessness (up to 45 sec) was reproduced in parabolic flights. It was found that changes in the basic indices of the function of the cardio-vascular and respiratory systems during an alternating effect of overloads and weightlessness were within the bearable limits of physiological variations; these changes were short-termed and of a reversible nature. Thus during the action of overloads, accelerated breathing and an increased pulse rate could be observed in most cases, as well as some functional changes of cardiac activity. In the state of short-term weightlessness the indices of the cardio-vascular system revealed a trend to nor-

Card 1/2

Some physiological responses of man under ....

S/216/62/000/006/001/002  
A004/A127

malization. Individual features of physiological responses of the persons tested to the alternating effect of increased and reduced gravitation could be observed. The test data obtained can be used as a basis for elaborating training measures relative to the effect of the factors mentioned. There are 5 figures and 4 tables. ✓

Card 2/2

ACCESSION NR: AT4042684

S/0000/63/000/000/0232/0236

AUTHOR: Kas'yan, I. I.

TITLE: The reaction of cosmonauts to short-term weightlessness

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsonnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy konferentsii. Moscow, 1963, 232-236

TOPIC TAGS: cosmonaut, weightlessness, parabolic trajectory, motor coordination, excess gravity

ABSTRACT: Experiments were performed in a two-seater airplane and in a flying laboratory permitting periods of weightlessness of 35-45 and 20-25 seconds, respectively. Each flight included 3-6 periods of weightlessness, with 10-15 minute intervals. The cosmonauts were either fastened to the seat, or were allowed to "swim" freely in the cabin, and records were made of the EKG, blood pressure, pulse rate and respiration, muscular strength and motor coordination (writing test, coordinograph studies and free "swimming" movement). Analysis of the data showed that the cosmonauts who were fastened to the seat showed no changes in motor coordination, while those who were free were usually unable to perform the assigned writing task, even though the coordinograph showed no disturbances in movement.

Card

1/3



ACCESSION NR: AT4042684

During free "swimming" in the cabin, the cosmonauts could move only with the aid of a cable or around the wall. The accuracy of assigned movements such as turning of the body with the eyes open or closed, however, was not disturbed. During the first period of weightlessness, there was some alertness and tension, but during the following tests the cosmonauts learned to deal with it and carried out their duties more economically and with better coordination. The emotional reactions to weightlessness differed in different cosmonauts, as shown by the paleness of the face in Nikolayev and the marked flush in Popovich. The intake of natural food during weightlessness was not disturbed. The muscular strength (dynamometry) during free "swimming" was decreased by 4-8 kg. The respiratory rate increased by 6-8 cycles/minute during the period of excess gravity in Gagarin and Titov, becoming normal during weightlessness, while in Nikolayev and Popovich it did not change significantly under excess gravity but increased by 3-7 cycles/min. during weightlessness. The heart rate increased by 20-63 beats per minute under excess gravity and decreased by 16-66 beats/minute in most cases during weightlessness. The systolic blood pressure increased by 10-28 mm Hg under excess gravity. In the EKG, as the heart rate increased, the R-R intervals shortened, and the P-Q and Q-T intervals shortened slightly, but during weightlessness a tendency toward normalization appeared. In all cases, these changes were functional and adaptive in character. The subjective reactions of the cosmonauts during weightlessness are also described.

Card 2/3

ACCESSION NR: AT4042684

ASSOCIATION: none

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: PH

NO REF SQV: 000

OTHER: 000

Card 3/3

KAS'YAN, I. I.

AID N. 974-7 22 May

PHYSIOLOGICAL REACTIONS OF ANIMALS IN HIGH-ALTITUDE ROCKET  
FLIGHTS (USSR)

Kas'yan, I. I. IN: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya,  
no. 2, 1963, 201-213. S/216/63/000/002/001/004

Six dogs weighing 5-7 kg were sent aloft in ballistic rockets to altitudes of 450 to 473 km for the purpose of studying the effects of acceleration and weightlessness on basic physiological functions of animals. During powered flight the respiration frequency tended to increase by 45 to 75 cycles per min. The high initial rate of respiration of one dog dropped to less than half, only to rise again when the weightless state was reached. The respiration rates of the other dogs, which had increased during powered flight, dropped almost to prelaunch levels when weightlessness was achieved. Pulse frequency increased by 45 to

Card 1/2

PHYSIOLOGICAL REACTIONS [Cont'd]

8/216/63/000/002/001/004

120 beats per minute during powered flight and tended to subside after weightlessness set in. Systolic pressure rose by as much as 95 to 100 mm Hg during powered flight, but increases in diastolic pressure were negligible in most cases, increasing by 60 mm in only one case. The EKG showed sharp increases in P<sub>2</sub>, R<sub>2</sub>, and T<sub>2</sub> peaks, and a reduction in the RR, QT, and QRS intervals. The systolic index rose from 33% to 54%. The electrical axis of the heart shifted from 40°-55° to 53°-64°. Toward the end of the weightless period, most indicators returned to their initial levels. The changes produced by acceleration and weightlessness were reversible and nonpathological. Four years later the dogs had failed to show any adverse effects of rocket flights.

[BM]

Card 2/2

ACCESSION NR: AP4000985

S/0216/63/000/006/0880/0891

AUTHOR: Kas'yan, I. I.; Kopanov, V. I.

TITLE: Weightlessness and artificial gravity

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 6, 1963, 880-891

TOPIC TAGS: weightlessness, space orientation, spacesickness, sensory disturbance, cardiovascular system, respiratory system, tachycardia

ABSTRACT: Data obtained in experiments with animals indicate the following pattern of changes in vegetative indices induced by the state of weightlessness: a tendency toward tachycardia and an increase in the respiration rate in the early stages of weightlessness. These changes were not pathological, which indicates that the organism is highly adaptable to the conditions of weightlessness. Information obtained from the flights of the Soviet cosmonauts proved that the human organism is able to tolerate weightlessness up to five days without suffering ill effects. The work capacity

Card 1/2

ACCESSION NR: AP4000985

of the cosmonauts was not impaired while they were strapped to their seats. However, when they left their seats and were "floating," their activity was limited practically to communicating with ground stations or with each other. All cosmonauts showed the same general pattern of response to the state of weightlessness. Exposure to weightlessness of short duration produced tachycardia and changes in the respiratory system. These functional changes gradually returned to normal under the effect of prolonged weightlessness, but the resistance to overloads was reduced. Means must be found to counteract the harmful effect of weightlessness in long-range flights. This could be done either by developing the resistance of the human organism or by technical improvement of the spaceships. Producing artificial gravity on spaceships may solve the problem.

ASSOCIATION: none

SUBMITTED: 16Feb63

DATE ACQ: 09Dec63

ENCL: 00

SUB CODE: AM

NO REF SOV: 037

OTHER: 050

Card 2/2

KAS'YAN, I.I.

Reaction of the cardiovascular and respiratory systems of animals during flights in hermetic cabins of rockets at altitudes up to 212 kilometers. Izv. AN SSSR, Ser. biol. 28 no.1:24-39 Ja-F'63.  
(MIRA 16:8)

1. Institut normal'noy i patologicheskoy fiziologii AMN SSSR.  
(SPACE FLIGHT—PHYSIOLOGICAL EFFECT)

YUGANOV, Ye.M.; KAS'YAN, I.I.; ASYAMOLOV, B.F.

Bioelectric activity of skeletal muscles under the conditions  
of alternating action of overloading and weightlessness. Izv.  
AN SSSR Ser. biol. 28 no.5:746-754 S-0'63 (MIRA 16:11)

1. Institute of Normal and Pathological Physiology, Academy  
of Medical Sciences of the U.S.S.R., Moscow.

\*



VOLYNKIN, Yu.M.; YAZDOVSKIY, V.I., prof.; GENIN, A.M.; GAZENKO, O.G.; GUROVSKIY, N.N.; YEMEL'YANOV, M.D.; MIKHAYLOVSKIY, G.P.; GORBOV, F.D.; SERYAPIN, A.D.; BAYEVSKIY, R.M.; ALTUKHOV, G.V.; KOPANEV, V.I.; KAS'YAN, I.I.; MYASNIKOV, V.I.; TERENT'YEV, V.G.; BRYANOV, I.I.; FEDOROV, Ye.A.; FOMIN, V.S.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; KOTOVSKAYA, A.R.; KAKURIN, L.I.; TSELIKIN, Ye.Ye.; USHAKOV, A.S.; VOLOVICH, V.G.; SAKSONOV, P.P.; YEGOROV, A.D.; NEUMYVAKIN, I.P.; TALAPIN, V.F.; SISAKYAN, N.M., akademik, red.; KOLPAKOVA, Ye.A., red.izd-va; ASTAF'YEVA, G.A., tekhn.red.

[First group space flight; scientific results of medical and biological studies carried out during the group orbital flight of manned satellites "Vostok-3" and "Vostok-4"]  
 Pervyi gruppovoi kosmicheskii polet; nauchnye rezul'taty mediko-biologicheskikh issledovaniy, provedennykh vo vremia gruppovogo orbital'nogo poleta korablei-sputnikov "Vostok-3" i "Vostok-4." Moskva, Izd-vo "Nauka," 1964. 153 p.  
 (MIRA 17:3)

ISAKOV, P. K.; YUGANOV, Ye. M., KAS'YAN, I. I.

"The influence of gravitational force in organization of body functions and problems of cosmic flights."

report submitted for 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

ACCESSION NR: AP4026727

S/0216/64/000/002/0280/0297

AUTHOR: Moskalenko, Yu. Ye.; Gizenko, O. G.; Shurubura, A. A.;  
Kas'yan, I. I.; Graunov, O. V.

TITLE: Dynamics of hemocirculatory parameters of the cerebrovascular system during longitudinal gravitational loads

SOURCE: AN SSSR. Izv. Seriya biologicheskaya, no. 2, 1964, 280-297

TOPIC TAGS: cerebral blood circulation, cerebrovascular hemocirculatory system, gravity acceleration, longitudinal gravitational load, blood pressure change, blood volume change, electroplethysmograph, data unit electrical system, cerebrospinal blood pressure change, central nervous system development, respiration movement, brain oxygen intensity, gravitational load sensitivity threshold, cerebrovascular mechanical regulation, cerebrovascular chemical regulation

ABSTRACT: In a series of 64 experiments changes in blood volume and pressure were studied in the cerebrovascular systems of dogs, cats, rabbits, and rats. In each of the experiments the animal was subjected to 15-20 tests on a rotating stand with longitudinal

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ACCESSION NR: AP4026727

gravitational loads up to + 1 g, and in some experiments animals were tested on a centrifuge with acceleration up to 10 g. Blood volume changes were measured by electroplethysmograph and blood pressure changes were recorded by tensoelectric manometers. Arterial pressure and respiratory movement were measured by data units, and oxygen intensity in the brain was determined by a polarographic method. Readings for all data units were registered on a K 12 21 oscillograph. Results show that the sensitivity threshold of the cerebrovascular system to longitudinal gravitational loads lies within limits of 0.2 to 0.5 g, depending on central nervous system development and the ecology of the animal. The active physiological reactions of the cerebrovascular system 5-10 sec after exposure to longitudinal gravitational loads are autoregulatory, with arterial pressure changes affecting vessel tone. With lack of oxygen and CO<sub>2</sub> accumulation in the brain 15-25 sec after exposure, compensatory reactions of a chemical regulatory nature appear. Orig. art. has: 13 figures, 3 tables.

ASSOCIATION: Institut evolyutsionnoy fiziologii im. I. M. Sechenova AN SSSR (Institute of Evolutionary Physiology AN SSSR)

Card 2/3

ACCESSION NR: AP4026727

SUBMITTED: 14Sep63

DATE ACQ: 22Apr64

ENCL: 00

SUB CODE: AM

NO REF SOV: 009

OTHER: 022

Card 3/3

YAZDOVSKIY, V.I.; KAS'YAN, I.I.; KOPANEV, V.I.

Basic problems in studying weightlessness. Probl. kosm. biol.  
3:37-58 '64. (MIRA 17:6)

ACCESSION NR: AP4037622

S/0216/64/000/003/0352/0368

AUTHOR: Kas'yan, I. I.; Kopanov, V. I.; Yazdovskiy, V. I.

TITLE: Circulation of the blood during weightlessness

SOURCE: AN SSSR. Izv. Sariiya biologicheskaya, no. 3, 1964, 352-368

TOPIC TAGS: weightlessness, hemodynamics, circulation

ABSTRACT: The authors review data collected on weightlessness from the first flights of dogs in high altitude rockets in the 1949-1956 period to the last manned spaceflight of Bykovskiy and Tereshkova. Data collected during these high-altitude and orbital flights include pulse frequency, arterial pressure, and bioelectrical activity of the heart (EKG). An analysis of these data indicates an absence of serious disruptions of circulation of the blood. Weightlessness, whether short-term or up to 5 days in duration, causes three types of reactions. The first is a distinct reduction in pulse frequency, accompanied by a reduction of arterial pressure (sometimes lower

Card 1/2

ACCESSION NR: AT4037706

8/2865/64/003/000/0366/0378

AUTHOR: Moskalenko, Yu. Ye.; Graunov, O. V.; Gazenko, O. G.; Kas'yan, I. I.

TITLE: Reactions of the vascular system in the intracranial cavity to equivalents of longitudinal g-loads

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy\* kosmicheskoy biologii, v. 3, 1964, 366-378

TOPIC TAGS: acceleration, brain, circulation, cerebral circulation

ABSTRACT: Electroplethysmographic (EPG) methods have been used to study intracranial hemodynamics in response to simulated or equivalent longitudinal g-loads obtained by rotating animals (rats, rabbits, and cats) in a vertical plane. The vectorial gravitational changes so produced induced active reactions in the vascular system of the brain. These changes occur 4 to 8 sec after the body posture has been changed. Their function is to normalize the blood filling of the intracranial cavity. Special experiments have shown that these active reactions are specific for cerebral blood vessels and that their threshold of sensitivity appears when the change is equivalent to 0.3 to 0.4 g. The data obtained indicate that

Card 1/2



ACCESSION NR: AT4037706

when animals are subjected to simulated longitudinal g-loads (head down), the organs of the central nervous system undergo a shortage of circulation and require compensation on the part of adaptive mechanisms.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: PH, LS

NO REF SOV: 004

OTHER: 007

Card 2/2

ACCESSION NR: AP4037623

S/0216/64/000/003/0369/0375

AUTHOR: Yuganov, Ye. M.; Sidel'nikov, I. A.; Gorshkov, A. I.;  
Kas'yan, I. I.

TITLE: Sensitivity of the vestibular analyzer and sensory reactions  
of man during short-term weightlessness

SOURCE: AN SSSR. Izv. Seriya biologicheskaya, no. 3, 1964, 369-375.

TOPIC TAGS: weightlessness, vestibular analyzer, parabolic flight,  
rotation, Coriolis acceleration, postrotational stability, nystagmus

ABSTRACT: Research on weightlessness has established that all persons may be classified into three groups on the basis of vestibular-sensory reactions. Group I consists of persons who can stand weightlessness without deterioration of general well-being or loss of work capacity. Group II consists of persons who suffer from illusory sensations concerning the orientation of their bodies in space. Group III consists of persons in whom adverse reactions appear rapidly and lead to the onset of motion sickness (nausea, vomiting, etc.), and

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ACCESSION NR: AP4037623

who become temporarily unable to work. A group of thirty subjects from all three categories, who had participated in parabolic flights, were subjected to a series of tests which involved rotation, rocking, Coriolis accelerations, inhibition of vestibular reactions, and post-rotational stability. The stability of the vestibular analyzer was judged on the basis of vegetative disturbances, duration of the post-rotational nystagmus, duration of illusions of counter-rotation, time required to regain balance on a chair with an unstable support, and duration of the "banking" illusion during the test involving inhibition of vestibular reactions. Results of these experiments show that the degree of sensory reactions under conditions of short-term weightlessness depends basically on variations in vestibular sensitivity of persons subjected to this test. Results obtained with ground experiments indicate that the ability of man to retain his work capacity in conditions of short-term weightlessness can be predicted on the basis of ground experiments. Ground tests show that persons in Group I are characterized by a low sensitivity of the vestibular analyzer to adequate stimulation and a sufficiently high level of inhibitory action on the vestibular analyzer by other afferent systems.

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ACCESSION NR: AP4037623

Group II persons manifest spatial illusions, an increased sensitivity of the vestibular analyzer to adequate stimuli, and a fairly pronounced inhibitory effect on the vestibular analyzer by other analyzer systems. Persons from Group III are characterized by high sensitivity of the vestibular apparatus to adequate stimulation and a weak inhibitory effect of other afferent systems on the vestibular apparatus. Orig. art. has: 1 table.

ASSOCIATION: none

SUBMITTED: 16May63

DATE ACQ: 05Jun64

ENCL: 00

SUB CODE: PH, LS

NO REF SOV: 004

OTHER: 003

Card 3/3

GAZENKO, O.G.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; YUGANOV, Ye.M.; YAZDOVSKIY, V.I.

Physiological reactions of animals during their flight in the  
third, fourth and fifth spaceships. Izv. AN SSSR. Ser. biol.

no.4:497-511 JJ-Ag '64.

(MIRA 17:10)

BOOKS: AN BOOK. Izvestiya. Seriya biologicheskaya, no. 3, 1974, pp. 677-689

photographs and tables indicating the response of man (N. Olayev, Bykovskiy, et al) and animals (dogs, guinea pigs, and rats) to parabolic and orbital flights. Tables show the motor activity and

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1. detailed coordination such as writing are rendered more

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ASSOCIATION: none





Card 2/3

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**APPROVED FOR RELEASE: 06/13/2000**

**CIA-RDP86-00513R000721110003-6"**

YAZDOVSKIY, V.I.; KAS'YAN, I.I.; KOPANEV, V.I.

Physiological responses of astronauts to overloads and  
weightlessness. Izv. AN SSSR Ser. biol. 29 no.1:12-31 Ja-F'64  
(MIRA 17:3)

1. Institute of Normal and Pathological Physiology, Academy *of Medical*  
~~of~~ Sciences of the U.S.S.R., Moscow.

ISAKOV, P.K.; YUGANOV, Ye.M.; KAS'YAN, I.I.

A theory of weightlessness is needed. Av. i kosm. 47 no.11:31-33  
N '64. (MIRA 17:11)

VOLYNKIN, Yu.M.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; ALTUKHOV, G.V.;  
 BAYEVSKIY, R.M.; BELAY, V.Ye.; BUYANOV, P.V.; BRYANOV, I.I.;  
 VASIL'YEV, P.V.; VOLOVICH, V.G.; GAGARIN, Yu.A.; GENIN, A.M.;  
 GORBOV, F.D.; GORSHKOV, A.I.; GUROVSKIY, N.N.; YESHANOV, N.Kh.;  
 YEGOROV, A.D.; KARPOV, Ye.A.; KOVALEV, V.V.; KOLOSOV, T.A.;  
 KORESHKOV, A.A.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; KALIBERDIN,  
 G.V.; KOPANEV, V.I.; KUZ'MINOV, A.F.; KAKURIN, L.I.; KUDROVA,  
 R.V.; LEBEDEV, V.I.; LEBEDEV, A.A.; LOBZIN, P.P.; MAKSIMOV,  
 D.G.; MYASNIKOV, V.I.; MALYSHKIN, Ye.G.; NEUMYVAKIN, I.P.;  
 ONISHCHENKO, V.F.; POPOV, I.G.; PORUCHIKOV, Ye.P.; SIL'VESTROV,  
 M.M.; SERYAPIN, A.D.; SAKSONOV, P.F.; TERENCEV, V.G.; USHAKOV,  
 A.S.; UDALOV, Yu.F.; FOMIN, V.S.; FOMIN, A.G.; KHLEBNIKOV, G.F.;  
 YUGANOV, Ye.M.; YAZDOVSKIY, V.I.; KRICHAGIN, V.I.; AKULINICHEV,  
 I.T.; SAVINICH, F.K.; STMPURA, S.F.; VOSKRESENSKIY, O.G.;  
 GAZENKO, O.G., SISAKYAN, N.M., akademik, red.

[Second group space flight and some results of the Soviet  
 astronauts' flights on "Vostok" ships; scientific results of  
 medical and biological research conducted during the second  
 group space flight] Vtoroi gruppovoi kosmicheskii polet i neko-  
 torye itogi poletov sovetskikh kosmonavtov na korabliakh  
 "Vostok"; nauchnye rezul'taty medikobiologicheskikh issledovaniy,  
 provedennykh vo vremia vtorogo gruppovogo kosmicheskogo poleta.  
 Moskva, Nauka, 1965. 277 p. (MIRA 18:6)

TITLE: On the physiological mechanisms of the effect of weightlessness on the

COMPOS. IN USSR Izvestiya. Soviya biologicheskaya, no. 1, 1971, p. 1-10.

weightlessness on the human organism. Weightlessness may cause sensory illusions (hanging upside down, falling, etc.); weightlessness may affect the reception of light signals (appearance of violet aureoles around lighted objects and increased perception of colors, especially yellow); it may disrupt the coordination of movements; it may affect certain vegetative functions (reduction of the frequency of cardiac contractions, reduction of blood pressure, etc.); and it may lead to motion sickness (as it did in the case of the cosmonaut Titov). There have been only partial explanations of the mechanism of weightlessness.

ACCESSION NO: AF300721

AUTHOR: Kas'yan I. I.; Kolosov, I. A.; Lubudov, V. I.; Turay, P. N.

TITLE: Reactions of cosmonauts during parabolic flights in air-planes

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 2, 1965,

acceleration, cardiovascular reaction, respiration, circulation, etc.

apparatus, where the cosmonauts could move during the flights. weightlessness was preceded by acceleration of 2-3 g.



L 42134.65

ACCESSION NR: AP5007273

these indices during acceleration. The respiratory rate of Gagarin,  
Titov, Nikolayev, Leonov, and Yegorich.

before the EMERG

Cord 2/4

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L 42134-65

ACCESSION NR: AP5007273

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APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721110003-6"

ation. Cosmonauts tried to perform a given task under conditions of weightlessness with the same muscular force as on earth. On the first flight, cosmonauts used 150-175% more force than required.

lessness, as compared with horizontal flight (6-12 kg for the right hand, 4-12 kg for the left). Individual differences in sensory,



I V. I. ; Lebedev, V. A.

and the heavens conducted vestibular and psychological experiments.

L 50344-65

ACCESSION NR: AP5013308

area members. Basically he made determinations of pulse rates of

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~~in unclassified conditions, which will be used as a basis for~~  
when planning future, more prolonged, space expeditions in which the

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"APPROVED FOR RELEASE: 06/13/2000

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Card 2 / 4

APPROVED FOR RELEASE: 06/13/2000

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etc. A radical means of ameliorating the effects of weightlessness  
will be the construction of spacecraft with artificial gravity al-

ventures.

(en)

ACCEPTE

L 14277-66 FSS-2/ENT(1)/FS(v)-3 DD/RD

ACC NR: AT6003861

SOURCE CODE: UR/2865/65/004/000/0270/0289

AUTHOR: Kas'yan, I. I.; Kopanev, V. I.; Yazdovskiy, V. I.

ORG: none

TITLE: Reactions of cosmonauts to conditions of weightlessness <sup>2, 44</sup>

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 270-289

TOPIC TAGS: manned spaceflight, weightlessness, space physiology, biologic respiration, cosmonaut, physiologic parameter, EKG

ABSTRACT: The authors review and consolidate data obtained from the flights of Vostoks 2-6. These data are given in the enclosed graphs and tables. The authors conclude that an important future experimental problem will be to establish the optimum magnitude of artificial gravity which will overcome the deleterious effects of weightlessness during prolonged manned spaceflights. Orig. art. has: 5 figures and 8 tables. [ATD PRESS: 4091-F]

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Table 1. Change in pulse rate (beats/min) during various Vostok flight stages under conditions of weightlessness (average)

Flight stage	Vostok - 2, G. S. Zilov				Vostok - 3, A. G. Nikolayev				Vostok - 4, P. R. Popovich				Vostok - 5, V. F. Rykovsky				Vostok - 6, V. V. Tereshkova			
	M	$\sigma$	C	Z P	M	$\sigma$	C	Z P	M	$\sigma$	C	Z P	M	$\sigma$	C	Z P	M	$\sigma$	C	Z P
Prelaunch (P), 5 min	100,0	7,31	8,85	100,0	112,0	7,10	8,35	100,0	117,0	7,30	8,15	100,0	117,0	12,17	9,37	100,0	113,0	5,32	6,41	100,0
Weight- less- ness	End of 1st day	101,0	9,80	9,17	120,0	82,0	8,21	4,01	113,1	101,0	5,30	5,15	85,9	101,0	8,70	9,15	76,0	111,0	6,31	5,61
	13	80,0	9,91	10,92	81,0	80,0	8,30	8,15	78,6	83,0	5,40	5,81	82,9	71,0	2,55	4,00	17,7	80,0	11,03	11,67
	17	97,9	12,81	12,85	97,5	79,0	11,30	11,30	70,5	80,0	6,64	6,47	81,3	70,0	7,30	10,35	53,0	78,0	6,47	9,58
	21				65,0	7,75	11,80	58,0	80,0	1,05	8,11	12,1	61,0	61,0	4,72	7,15	58,4	61,0	3,92	6,35
	25				61,0	3,80	4,15	58,0	50,0	5,15	12,01	50,1	50,0	5,05	11,11	31,0	78,0	5,37	11,06	58,8
	29				61,0	8,51	9,77	60,1	51,0	13,10	10,50	11,1	50,0	1,17	6,07	17,8	60,0	4,03	5,91	51,9
	33				73,0	8,27	11,35	60,0	58,0	7,00	5,70	47,0	62,0	3,01	1,77	17,0	61,0	11,14	18,43	43,1
	37				72,0	2,70	3,70	61,0	61,0	1,22	2,00	52,1	58,0	2,10	4,11	11,0	70,0	1,80	4,01	52,6
	41				87,0	3,75	5,55	59,0					58,0	3,90	6,85	43,9				
	45				81,0	2,50	3,90	57,0					70	5,10	7,15	51,0				
4th day																				
5th day																				
Begin- ning of 6th day																				

Note: M - mean arithmetic;  $\sigma$  - mean quadratic error; C - variation coefficient

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Table 2. Changes in respiration rate (cycles/min) during various Vostok flight stages under conditions of weightlessness (average)

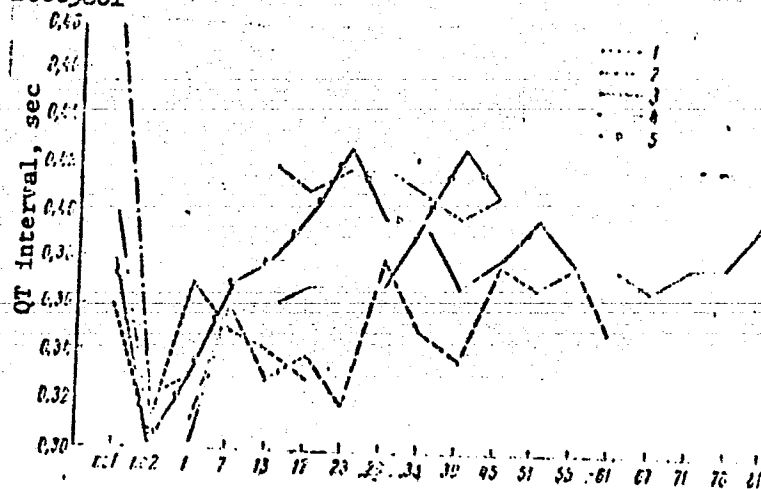
Flight Stage		Vostok - 2, G. S. Izrael				Vostok - 3, L. G. Nikulayev				Vostok - 4, P. R. Korshak				Vostok - 5, V. P. Bykovskiy				Vostok - 6, T. V. Tarasheva			
		M	σ	C	2 P	M	σ	C	2 P	M	σ	C	2 P	M	σ	C	2 P	M	σ	C	2 P
Pre-launch (p), 3 min		15.81	1.20	20.2	120.0	9.67	1.33	17.46	100.0	15.17	1.40	17.47	103.0	16.81	1.45	20.2	120.0	16.81	1.45	20.2	120.0
Weight- less- ness	End of 1st day	13.64	3.23	20.3	20.4	13.71	3.86	20.8	111.8	13.11	3.18	18.51	106.5	13.71	3.86	20.8	111.8	13.71	3.86	20.8	111.8
	2nd day	17.17	3.31	23.67	82.4	11.00	8.70	18.33	113.8	14.20	2.64	11.23	120.0	18.07	2.70	15.01	103.0	22.50	3.10	13.82	120.2
	3rd day	18.61	3.80	18.1	81.7	11.29 (16)	1.58	11.01	119.8	17.30	1.07	21.23	111.6	18.70	2.04	18.43	118.2	21.83	2.87	11.70	120.8
	4th day	23				10.30	3.11	26.8	112.3	18.35	1.82	3.01	103.0	21.73	2.63	12.35	106.8	21.00	1.10	5.63	121.3
	5th day	28				9.5 (9)	1.71	21.01	77.26	15.00	1.46	23.00	104.5	11.00	2.43	20.28	113.2	21.00	1.43	8.80	126.1
	6th day	32				11.1 (12)	2.67	26.0	111.7	15.23 (11)	1.87	18.50	100.5	18.0 (15)	1.70	18.70	112.0	21.41	2.07	12.55	129.2
	7th day	36				12.40	2.81	22.0	128.2	11.86	1.70	18.17	100.0	18.51	1.62	8.72	110.3	21.51	1.57	9.12	121.6
	8th day	42				10.8	2.41	27.7	100.8	18.31 (13)	1.87	15.02	107.6	18.43	2.45	25.51	103.5	19.87	5.80	29.81	113.4
	9th day	51				13.0	3.21	21.27	131.4					18.30	2.41	15.42	103.7				
	10th day	56				11.7	2.78	23.72	120.0					18.23	1.25	8.82	103.4				
Begin- ning of 10th day	61					9.75 (8)	2.51	23.71	120.8					17.00	1.41	8.31	101.0				
	67													18.80	2.51	13.96	112.0				
	71													19.17	1.43	7.73	113.9				
	76													13.8	2.52	18.8	101.2				
	81													17.51	2.41	13.01	101.2				

Note: M - mean arithmetic; σ - mean quadratic error; C - variation coefficient

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Orbit no. 1  
Fig. 1. Change in the duration of the EKG QT interval in Vostok cosmonauts

1 - Vostok-2, G. S. Titov; 2 - Vostok-3, A. G. Nikolayev;  
3 - Vostok-4, P. R. Popovich; 4 - Vostok-5, V. F. Bykovskiy;  
5 - Vostok-6, V. V. Tereshkova.

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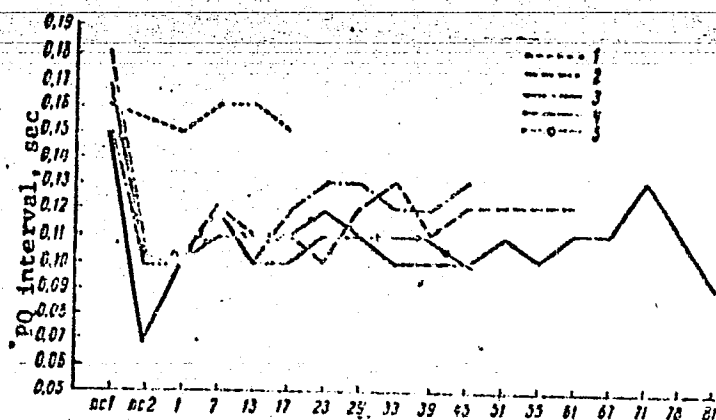


Fig. 2. Change in the duration of the EKG PQ interval in Vostok cosmonauts

- 1 - Vostok-2, G. S. Titov; 2 - Vostok-3, A. G. Nikolayev;  
 3 - Vostok-4, P. R. Popovich; 4 - Vostok-5, V. F. Bykovskiy;  
 5 - Vostok-6, V. V. Tereshkova.

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ACC NR: AT6003861

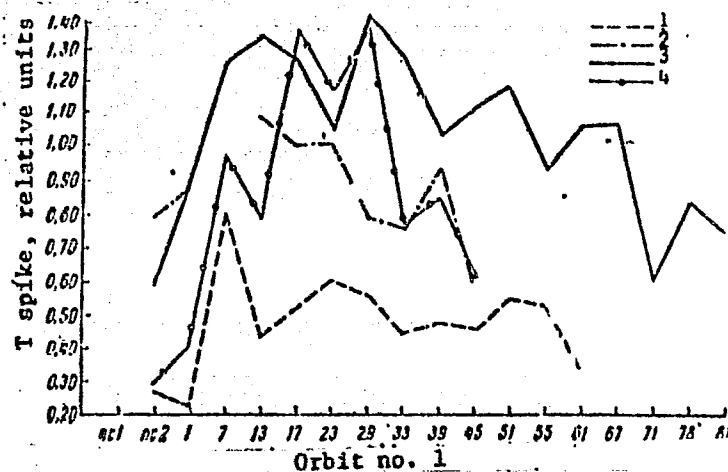


Fig. 3. Change in the amplitude of the EKG T spike in Vostok cosmonauts  
1 - Vostok-3, A. G. Nikolayev; 2 - Vostok-4, P. R. Popovich; 3 - Vostok-5, V. F. Bykovskiy; 4 - Vostok-6, V. V. Terashkova.

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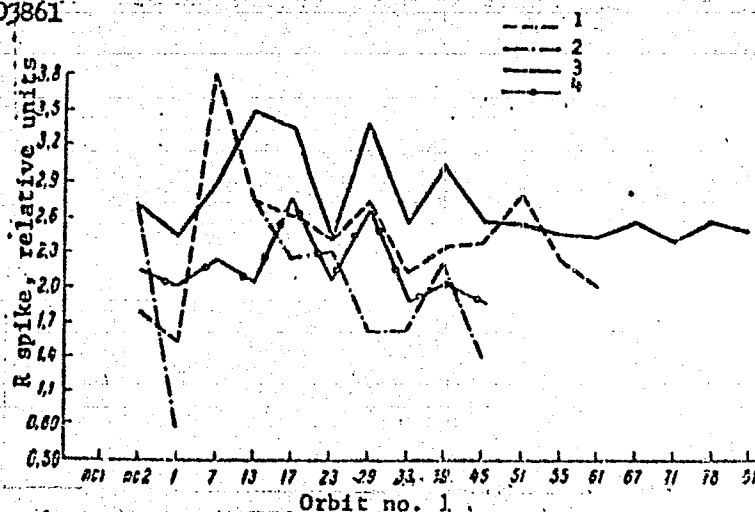


Fig. 4. Change in the amplitude of the EKG R spike in Vostok cosmonauts

1 - Vostok-3, A. G. Nikolayev; 2 - Vostok-4, P. R. Popovich; 3 - Vostok-5, V. F. Bykovskiy; 4 - Vostok-6, V. V. Tereshkova.

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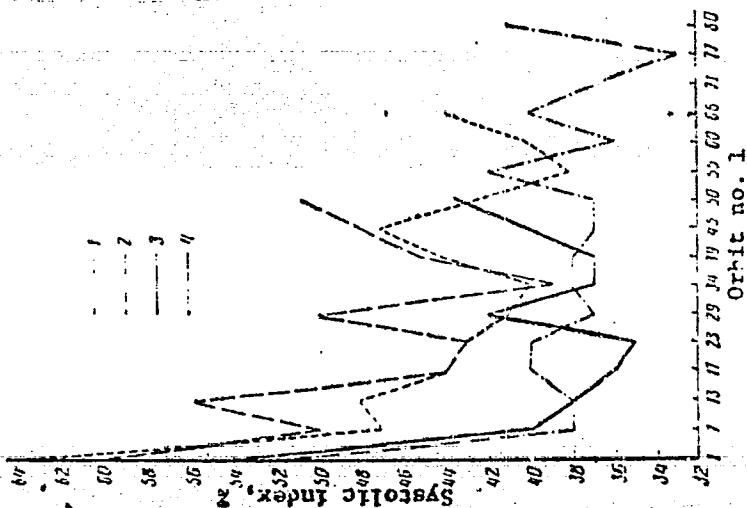


Fig. 5. Change in the systolic index of Vostok Cosmonauts

- 1 - Vostok-3, A. G. Nikolayev;
- 2 - Vostok-4, P. R. Popovich;
- 3 - Vostok-5, V. F. Bykovskiy;
- 4 - Vostok-6, V. V. Tereshkova

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ACC PR: AT6003861

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 027 / OTH REF: 018

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13465  
AUTHOR: Vasil'yov, P. V.; Voskresenskiy, A. D.; Las'yan,  
Pestov, I. D.; Chekhnadskiy, N. A.

TITLE: Reaction of the cardiovascular and respiratory systems of cosmonauts  
to orbital flight in Vostok-1 57  
B

SOURCE: AN SSSR, Izvestiya, Seriya biologicheskaya, no. 4, 1965, 491-499

TOPIC TAGS: space physiology, cardiovascular system, cardiology, respiratory  
space flight, astronaut

of these investigations are given in the following tables: